female. Eighty-seven percent of elderly population used health service at least once and forty-four percent visited multi-health-centers. One-third of elderly patients that used the health services were hypertension patients. Older age (incidence rate ratio: IRR 2.77; 95% confidence interval 2.75-2.79 for patients aged > 80 years), being female (IRR 1.96; 95% CI 1.95-1.98), and having multiple-comorbidities (IRR 1.56; 95% CI 1.40-1.73 for charlsons' co-morbidities index [CCI] score of >4) increase the utilization of health service. **CONCLUSIONS:** Health need was the most important factor associated with health services utilization. Health system should be appropriately designed for elderly population. Further studies are needed to evaluate economic consequences of the elderly's health utilization and identify the factors affecting patients who visit multi-health-centers.

PHS105
BREAST AND CERVICAL CANCER SCREENING IN UK: DYNAMIC INTERRELATED PROCESSES?
Labeit A
University of Illinois College of Medicine at Peoria, Peoria, IL, USA
OBJECTIVES: No previous analysis has investigated simultaneously the determinants of screening uptake for the breast and cervical cancer screening in UK and looked for possible spillover effects from one type of screening examination to the other type of screening examination. **METHODS:** 838 women with 11,732 from the British Household Panel Survey (BHPS) for the time period from 1992 to 2008 were analysed for this analysis. As econometric model was a dynamic random effects panel bivariate probit model with initial conditions (Wooldridge-type estimator) used and dependent variables were the uptake of breast and cervical cancer screening in the recent year. **RESULTS:** Our investigation shows the high relevance of past screening behaviour and the importance of state dependency for the same and the other type of cancer screening examinations even after controlling for covariates and unobserved heterogeneity. The uptake for breast and cervical cancer screening was higher if the same screening examinations were one or three years before which is in accordance with the medical screening guidelines. For breast and cervical cancer screening positive spillover effects existed from one type of examination to the other type of examination for the third lag. Women with a previous visit of a GP, living in a partnership and individuals in the recommended age groups had a higher uptake for breast and cervical cancer screening. Other socioeconomic and health related variables had non-uniform results in both screening examinations. **CONCLUSIONS:** Promoting the uptake level of one type of female prevention activity could also enhance the uptake of the other type of prevention activity.

PHS106
EXPLORING THE IMPACT OF CLINICAL, FUNCTIONAL AND SOCIAL FACTORS ON HIP FRACTURE PATIENT HOSPITALIZATION COSTS: INFORMING THE DESIGN OF A NEW CASE MIX PAYMENT SYSTEM
Hellsten EK[1], Rais S[2], Tsegelsky A[2], Malikov K[2]
[1]*Health Quality Ontario, Toronto, ON, Canada,* [2]*Ministry of Health and Long-Term Care, Toronto, ON, Canada*
OBJECTIVES: Case mix reimbursement systems used in many countries to pay for hospital services typically rely on combinations of diagnoses and procedures to group patients according to their expected costs. In frail, complex populations such as patients with hip fracture, patients' pre-hospitalization functional status and social circumstances may also be important predictors of resource utilization. We investigated the association between clinical, functional and social factors and hospitalization costs in order to inform the parameters for a new case mix payment system. **METHODS:** A multidisciplinary clinical expert panel identified candidate patient covariates to be modeled. We linked hospital, long-term care and home care records to examine patients' pre-hospitalization functional status and place of residence. We employed generalized linear models to explore the association between patient characteristics and hospitalization costs. Based on the results of this analysis, the expert panel issued recommendations on the design of the new payment methodology. **RESULTS:** The analysis cohort included 11,321 patients admitted with hip fracture to hospitals in Ontario, Canada throughout 2011/12. Of these, 17.6% were admitted from residence in long-term care. Multivariable analysis revealed the most important predictors of increased hospitalization costs to be impairments in activities of daily living, higher Charlson comorbidity score and pre-hospitalization residence in a long-term care home. Based on these results, the expert panel recommended a new hip fracture funding model that stratifies the population by pre-fracture place of residence and incorporates activities of daily living and comorbidity level as additional risk adjustors. **CONCLUSIONS:** While requiring record linkage across datasets, the inclusion of hip fracture patients' pre-hospitalization characteristics as case mix adjustors can improve the performance of case mix payment systems. For the frail hip fracture population, functional and social factors should also be considered as predictors of hospitalization costs, alongside traditional clinically-focused variables.

PHS107
INCREASED IN ACUTE HEALTH CARE USE AMONG PEOPLE LIVING WITH HUMAN IMMUNODEFICIENCY VIRUS (HIV) AND CO-MORBID DEPRESSION IN ONTARIO: A LONGITUDINAL STUDY
Choi S[1], Boyle E[2], Kumar M[3], Cairney J[4], Krahn MD[5], Grootendorst P[1], Carvalhal A[6], Collins EJ[7], Rourke SB[8]
[1]*University of Toronto, Toronto, ON, Canada,* [2]*university of southern denmark, Denmark,* [3]*Institute for Clinical Evaluative Sciences, Toronto, ON, Canada,* [4]*McMaster University, Hamilton, ON, Canada,* [5]*Toronto Health Economics and Technology Assessment (THETA) Collaborative, Toronto, ON, Canada,* [6]*St. Michael's Hospital, ON, Canada,* [7]*University Health Network, ON, Canada,* [8]*Ontario HIV Treatment Network, Toronto, ON, Canada*
OBJECTIVES: Depression is a common co-morbidity among people living with HIV. Co-morbid depression often leads to poor self-management and non-adherence to antiretroviral therapy which may result in increased use of emergency and inpatient care. We aimed to examine impacts of co-morbid depression on acute health care utilization over time among this high-need population in Ontario. **METHODS:** A longitudinal HIV+ cohort study of Ontarians(N=3,545) was undertaken from 2008-2012 by linking the Ontario HIV Treatment Network(OHTN) Cohort Study and the administrative health databases. Co-morbid depression defined based on either the Center for Epidemiologic Studies Depression Scale(Scores>=20) or the Kessler Psychological Distress Scale(Scores>=23) was assessed from the yearly interviews. Patterns of emergency and inpatient care utilization were assessed during the 12 months following each interview. Urgent and non-urgent emergency room visits were defined using the five-level Canadian Triage and Acuity Scale(CTAS). Generalized mixed effect regressions were used to examine associations between the acute care utilization and the co-morbid depression over time. **RESULTS:** At baseline, 950(27%) were identified with co-morbid depression. The HIV+ patients with co-morbid depression were more likely to be age<50 years(OR:1.6;95%CI:1.4-1.9), female(OR:1.6;95%CI:1.3-1.9), have CD4 count<200cell/mm^3(OR:1.3;95%CI:1.1-1.7) and have used non-medical drugs in past 6 months(OR:1.8;95%CI:1.5-2.1). The prevalence of the use of urgent and non-urgent emergency room and inpatient care for those with co-morbid depression were 58vs.42%,44vs.31%,13vs.7% when compared to their non-depressed counterparts. Over the five-year follow-up, those with co-morbid depression were more likely to use urgent (Adjusted OR (aOR):1.7;95%CI:1.2-2.5) and non-urgent (aOR:1.4;95%CI:1.03-2.0) emergency services and to be hospitalized (aOR: 1.6;95%CI:1.3-2.1) when compared to their non-depressed counterparts after controlling for socio-demographics, clinical markers, and behaviourial confounders. **CONCLUSIONS:** Co-morbid depression experienced in persons living with HIV significantly increases the use of acute care services. Incorporation of strategies in managing and detecting co-morbid depression would be important to deliver successful HIV care in Ontario.

PHS108
HOW EFFECTIVE ARE AUSTRALIAN MENTAL HEALTH COUNSELLING SERVICES FOR WOMEN WITH POOR MENTAL HEALTH?
Dolja-Gore X[1], Loxton D[1], D'este C[2], Byles J[1]
[1]*Research Centre for Gender, Health and Ageing, Newcastle, NSW, Australia,* [2]*Centre for Clinical epidemiology and Biostatistics, Newcastle, NSW, Australia*
OBJECTIVES: Australia's 'Better Access Scheme' (BAS) aims to improve access to mental health care by providing 10 subsidised counselling visits per year for Australians with diagnosed mental health problems. This study compares improvement in mental health outcomes of Australian women with poor mental health who do and do not uptake the BAS services. **METHODS:** The Australian Longitudinal Study of Women's Health data provided baseline and follow-up measures linked to Australia's Medical Benefits Scheme data, which provided claims for visits to counselling services under the BAS. Regression models were adjusted for a propensity score estimate on the use of the BAS services based on baseline characteristics. These propensity scores were then used in stratified analyses to investigate the relationship between BAS use and improvement in mental health outcome scores. **RESULTS:** Women using the BAS services had a lower mean mental health baseline scores compared to those not using the BAS (52.4 vs 62.2, respectively). Quintile-specific pooled analysis showed statistically significant decreased odds in improvement in follow-up mental health outcomes between women who did and did not use the BAS services (OR: 0.601; 95% CI: 0.43-0.85) after controlling for propensity for treatment. The odds ratio at follow-up between women that did and did not use the BAS services was statistically significantly increased after adjusting for use of anti-depressant medications [1.78; CI: 1.18, 2.70], but no statistically significant differences in mental health outcome scores for women that had completed treatment within 3-months from follow-up [1.78; 95% CI: 1.18, 2.70]. **CONCLUSIONS:** The implementation of the BAS has resulted in women with poorer mental health receiving the government services and improved mental health outcome scores for those women that completed treatment. With increasing mental health problems in Australia services such as the BAS are vital in assisting recovery.

PHS109
HIGH UTILIZERS OF HEALTH CARE RESOURCES: RESULTS FROM THE MULTICENTER COMPACT STUDY OF COMPLICATIONS IN PATIENTS WITH SICKLE CELL DISEASE AND UTILIZATION OF IRON CHELATION THERAPY
Jordan L[1], Adams-Graves P[2], Kanter-Washko J[3], Oneal P[4], Sasane M[5], Magestro M[5], Marcellari A[5], Vekeman F[6], Bieri C[7], Adams A[7], Duh MS[8]
[1]*University of Miami, Miller School of Medicine, Miami, FL, USA,* [2]*University of Tennessee Health Science Center, Memphis, TN, USA,* [3]*Medical University of South Carolina, Charleston, SC, USA,* [4]*Howard University, Washington, DC, USA,* [5]*Novartis Pharmaceuticals Corporation, East Hanover, NJ, USA,* [6]*Groupe d'analyse, Ltée, Montréal, QC, Canada,* [7]*Analysis Group, Inc., Washington, DC, USA,* [8]*Analysis Group, Inc., Boston, MA, USA*
OBJECTIVES: To understand characteristics of sickle cell disease (SCD) patients ≥16 years old who have increased utilization of inpatient (IP) and emergency department (ED) resources. **METHODS:** Medical records of 254 SCD patients ≥16 years old were retrospectively reviewed at three US tertiary care centers. High utilizers (HUs) were defined as patients with ≥5 days of IP+ED care for SCD-related complications per year. Patients were classified in cohorts based on cumulative blood transfusion and iron chelation therapy (ICT): <15 units, no ICT (C1); ≥15 units, no ICT (C2); ≥15 units, with ICT (C3). SCD complication rates were expressed as the number of SCD complications per patient per year (PPPY); cohort comparisons used rate ratios (RRs). A logistic regression was used to identify risk factors for high IP+ED utilization. **RESULTS:** Of 254 patients (C1: 69, C2: 91, C3: 94), 30% were HUs (C1: 14[18.4%], C2: 37[48.7%], C3: 25[32.9%]). HUs were younger (median [range]: 21 [16-65] vs. 23 [16-59] years old), and had shorter observation time (mean: 6.7 vs. 8.2 years). HUs accounted for 68% of SCD-related complications and 88% of IP+ED days. Pain (81%) and infection (7%) were key HU complications. Mean (95% CI) PPPY IP+ED days was higher among HUs (16.63 [16.28-16.99]) vs. other patients (0.89 [0.84-0.94]). Among regularly transfused HUs (C2+C3), those with ICT had fewer IP+ED days (C2 vs. C3 RR [95% CI]: 1.30 [1.24-1.36]) and IP+ED readmissions within 30 days (1.70 [1.49-1.93]). History of infections was associated with an increased risk of high IP+ED utilization